THERMOSHIELD®

thermal insulation coating

Woolworths

Australia's fresh food people

Claremont, Tasmania

Roof Restoration | Corrosion Control | Waterproofing

CORROSION control

Waterproof

THERMOSHIELD PROUDLY MADE IN AUSTRALIA

10 YEAR warranty IF APPLIED BY THERMOSHIELD APPROVED APPLICATORS

ISO 9001 & 14001 Certified

THERMOSHIELD®
thermal insulation coating

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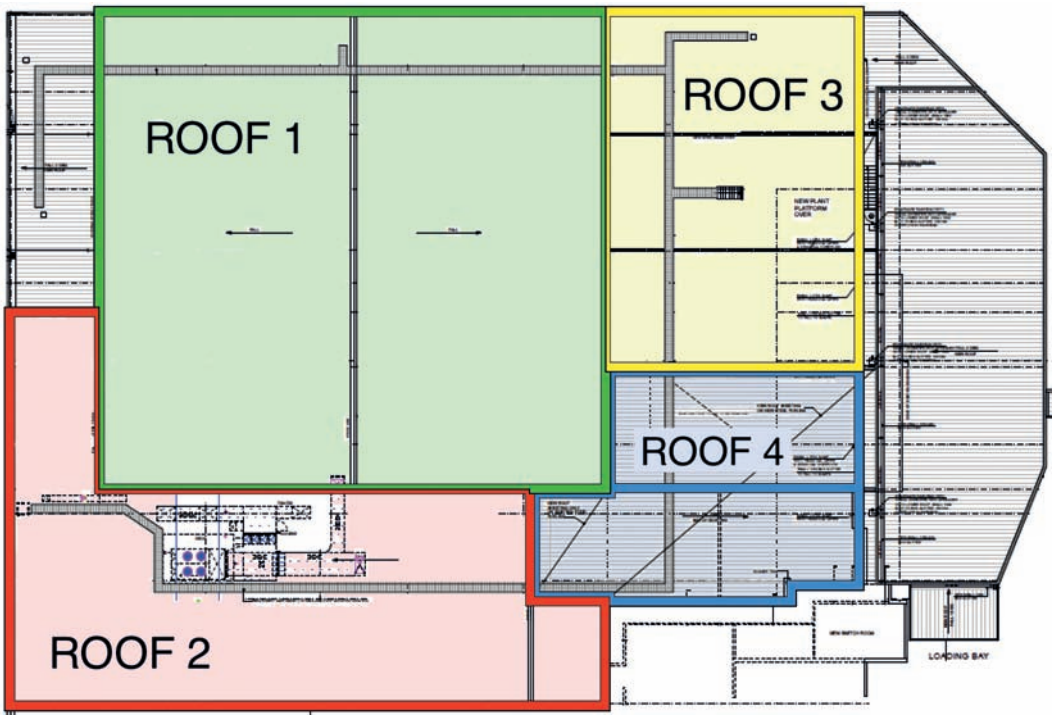
Rust Conversion
Galvanic Corrosion protection
Thermal Insulation
Water Proofing

The roof at Claremont Plaza Woolworths was suffering from areas of acute corrosion and surface rust that was manifesting in widespread waterproofing concerns.

Thermoshield ceramic coating process consists of 5 stages:

1. **Roof assesment and power washing**
2. **Rust Conversion**
3. **Rust Inhibitor Etch Primer**
4. **Waterproofing high microfiber membrane**
5. **Two coats of Thermoshield ceramic coating**



Roof 1 and 2 These are the first and most critical, “roof 1 and 2” in the above diagram are in most need of rust conversion due to incompatible metals, whereby a zincalume ridge cap and vent was installed on a ‘galv’ roof causing ‘galvanic corrosion’.

In the same area, ‘galv’ sheeting appears to be quite weathered, yet still in perfectly sound condition. At most, the zinc galvanising layer appears to have worn through and exposed the steel in isolated areas - which could lead to further sheet deterioration in the near future.

The **Thermoshield** coating will re-seal the exposed steel where the galvanised layer may have worn in many areas, leaving steel protected from the elements.

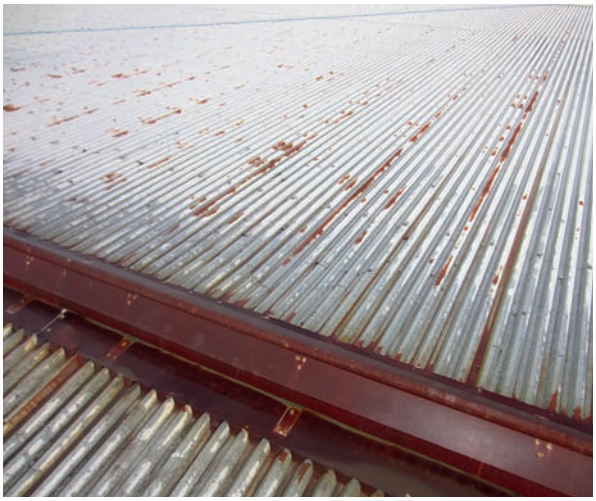
Stage 1 roof assesment and cleaning

Wide angle shot of the roof in most need of repair works ‘Roof 1’.

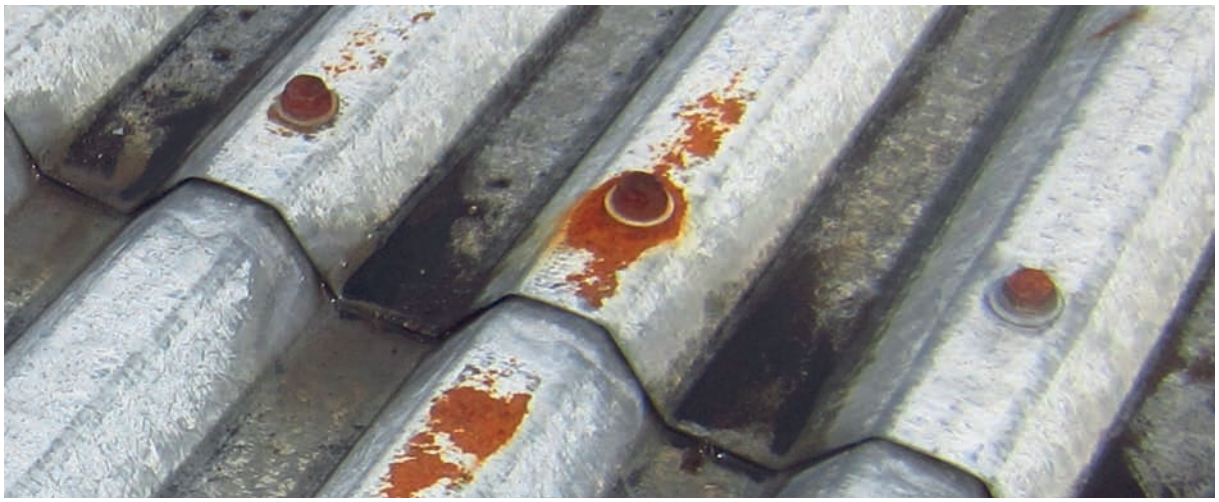
Here you can see on close inspection the zincalume ridge cap is suffering from advanced surface rusting due to the incompatability between the ‘galv’ sheeting.

This shows the advanced corrosion of the ridge cap and also the gaping holes where wind can easily push water back underneath, due to the flat pitch.

Stage 1 roof assesment and cleaning



These shows the spot rusting on the sheets as well as the heavily rusted ridgecap.



Lastly you can see the heavily rusted tech screws and waterpooling on sheet laps.

Stage 2 Rust conversion

Following power washing at 3,600psi, rust conversion commenced.

The rust converting etch primer is applied **to rusted steel only** and not clean steel.

Our rust converting primer of choice has a lower pH and this enables it to be applied directly over rusted steel, where the converting action turns all the rust (namely, the mixed iron oxides and hydrated oxides) into a stable metal phosphate, whilst simultaneously forming a tough protective coating over the converted steel.

This is an irreversible reaction, which leads to a permanent rust conversion.

If correct surface preperation and application occurs.

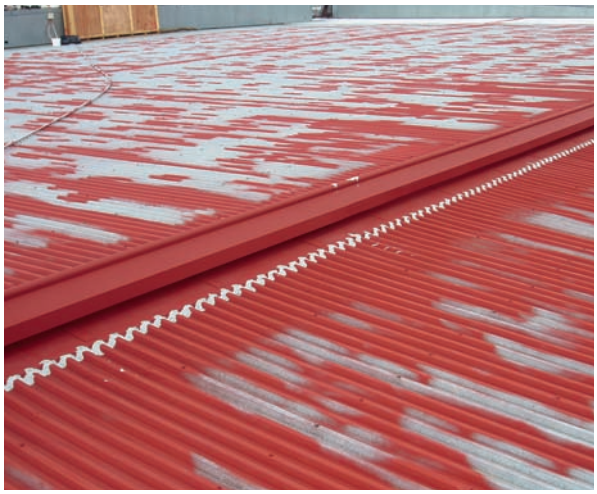
Thermoshield begins with rust conversion to the heavily rusted, zincalume ridgecap.

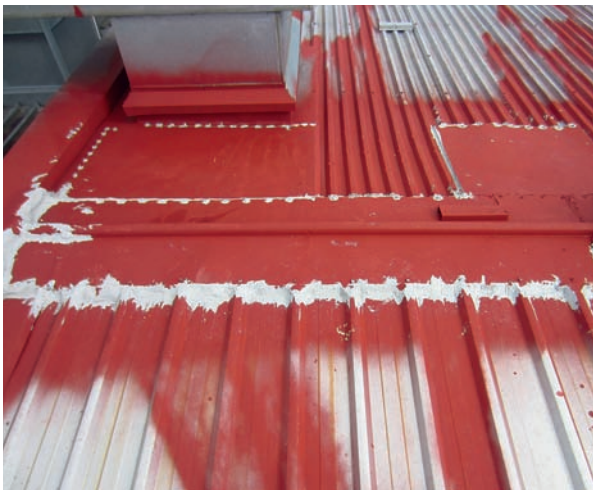
Application of the ridgecap coating being applied, whilst the last of the high pressure washing takes place at the sheet ends.

Stage 2 Rust conversion

Close up, before and after examples of a typical conversion.

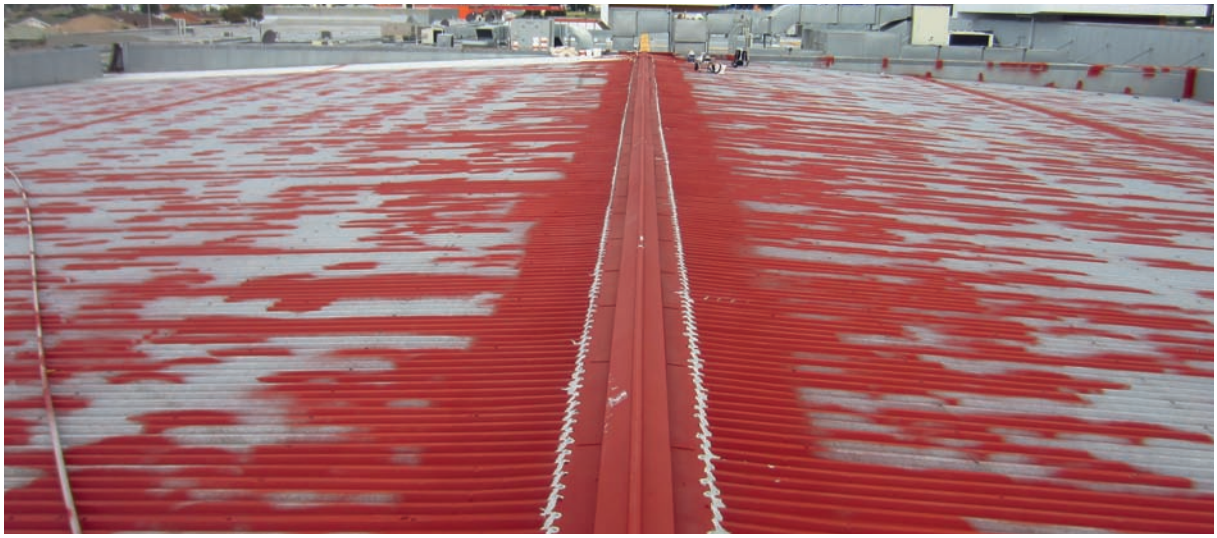
Detail showing the rust conversion, also waterproofing of flashing.





Over page will demonstrate the full process involved in coating and waterproofing the full length of the ridgecap.

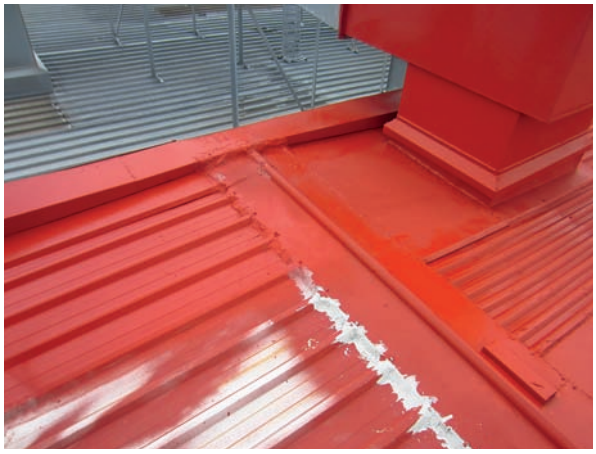
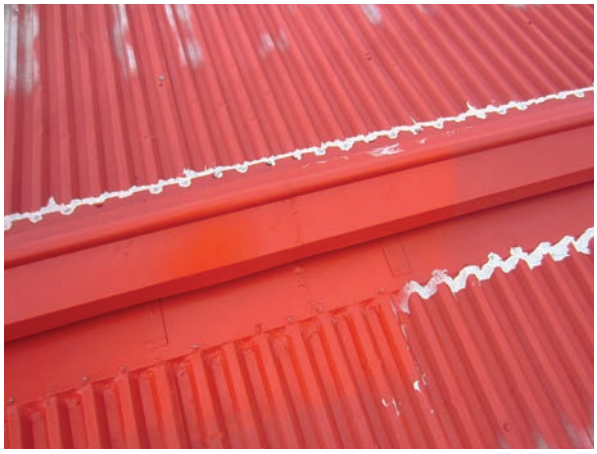
Stage 2 completed rust conversion



Stage 3 rust inhibitor etch primer coating

Once rust has been converted to a stable, metal phosphate within the paint film a coating of a rust preventative primer coat is applied to all areas.

The primer coat is designed for application onto non-rusted surfaces. The coating is the “twin sister” to the converter, which is designed mainly for application over well-rusted steel. When the primer cures into an abrasion-resistant skin, its impervious to further rust.


Stage 3 rust inhibitor etch primer coating







Additional progress shots of etch priming.

Stage 3 completed rust inhibitor etch primer

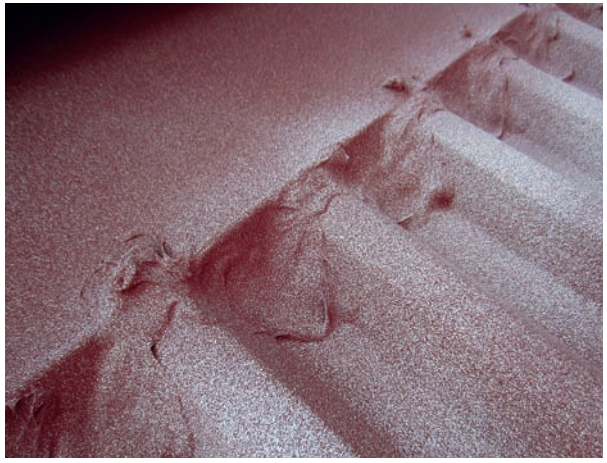
Stage 4 Waterproofing ridgecap process

Original state.

Rust Conversion.

Screw ‘down’ flashing to sheets.

‘Gaps’ sealed using paintable silicone.

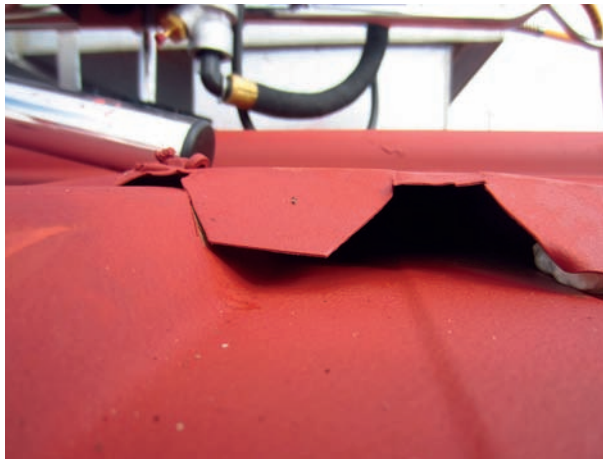


Rust inhibitor etch primer coat.

Sealed beneath **Thermoshield**.

Stage 4 Waterproofing ridgecap process

Original state.



Rust conversion.

Expandable foam.

Paintable silicone.

Rust inhibitor etch primer coat.

Sealed beneath **Thermoshield**.

Stage 4 corroded sheet spot repair process

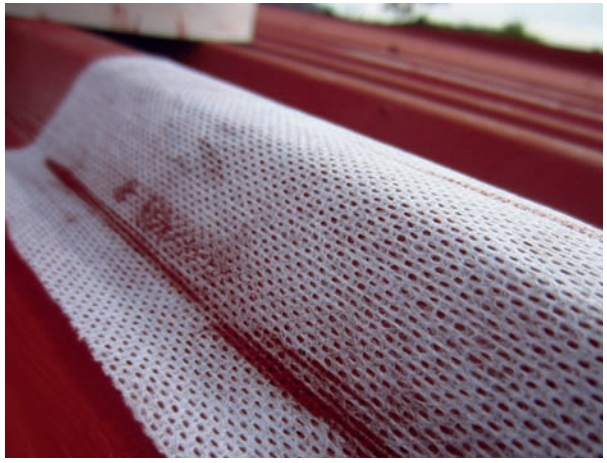
All corrosion holes treated & sealed.

Following rust conversion and prior to the **Thermoshield** membrane, all non structural holes were repaired and waterproofed.

Stage 4 corroded sheet spot repair process



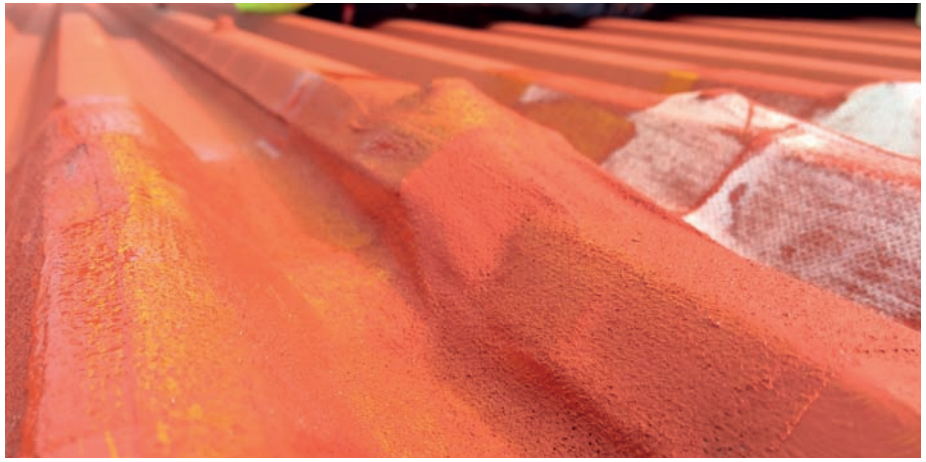
More examples of spot repairs performed.


Another typical example

Stage 4 waterproofing sheet overlaps

Stage 4 waterproofing sheet overlaps



All repairs focus on creating water flow away from the joins. Sheet laps were showing advanced corrosion in many areas.

Stage 4 waterproofing sheet overlaps

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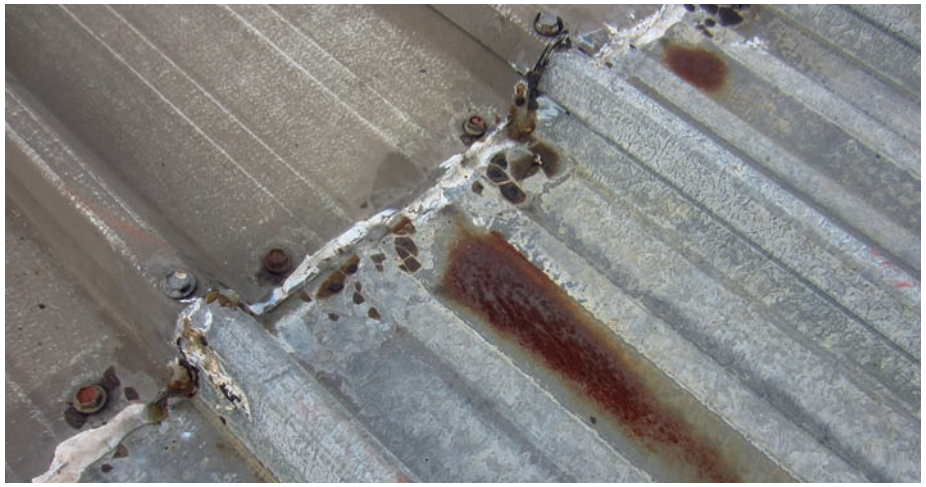
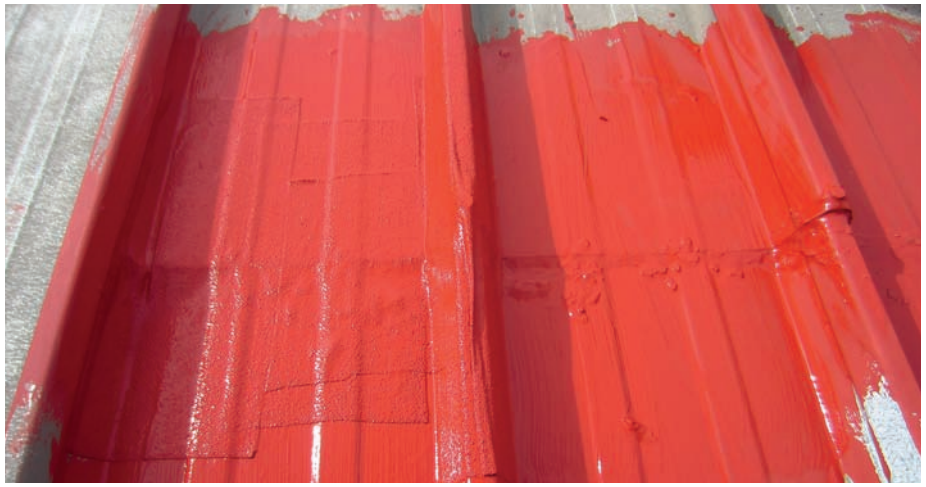
Stage 4 waterproofing sheet overlaps





Another example on the neighbouring roof whereby water run off promoted after removal of silicone.

Stage 5 Thermoshield ceramic coating

Rust conversion, combined with Thermoshield ceramic coating

Following rust conversion and primer the water based **Thermoshield** adhesion to the water based rust converter and etch primer is outstanding.

Thermoshield thermal ceramic coating creates approximately 2mm, non permeable membrane that acts to encase the converted metal, eliminating any and all environmental exposure.

*Corrosion ultimately requires water and oxygen. Following permanent rust conversion, the metal is sealed beneath the thick 'blanket' of the **Thermoshield** ceramic coating, eliminating water and oxygen exposure to the metal.*

Thus, essential elements for rust/corrosion, have been eliminated from the equation.

Galvanic corrosion, incompatible metal use

One requirement is to electrically insulate the two metals from each other. Unless they are in electrical contact, a galvanic couple cannot be set up, thus preventing galvanic corrosion.

Thermoshield is comprised of millions of hollow ceramic beads that cluster together to create dead air space. In essence, **Thermoshield** is comprised of major electronic insulators, in ceramic and air.

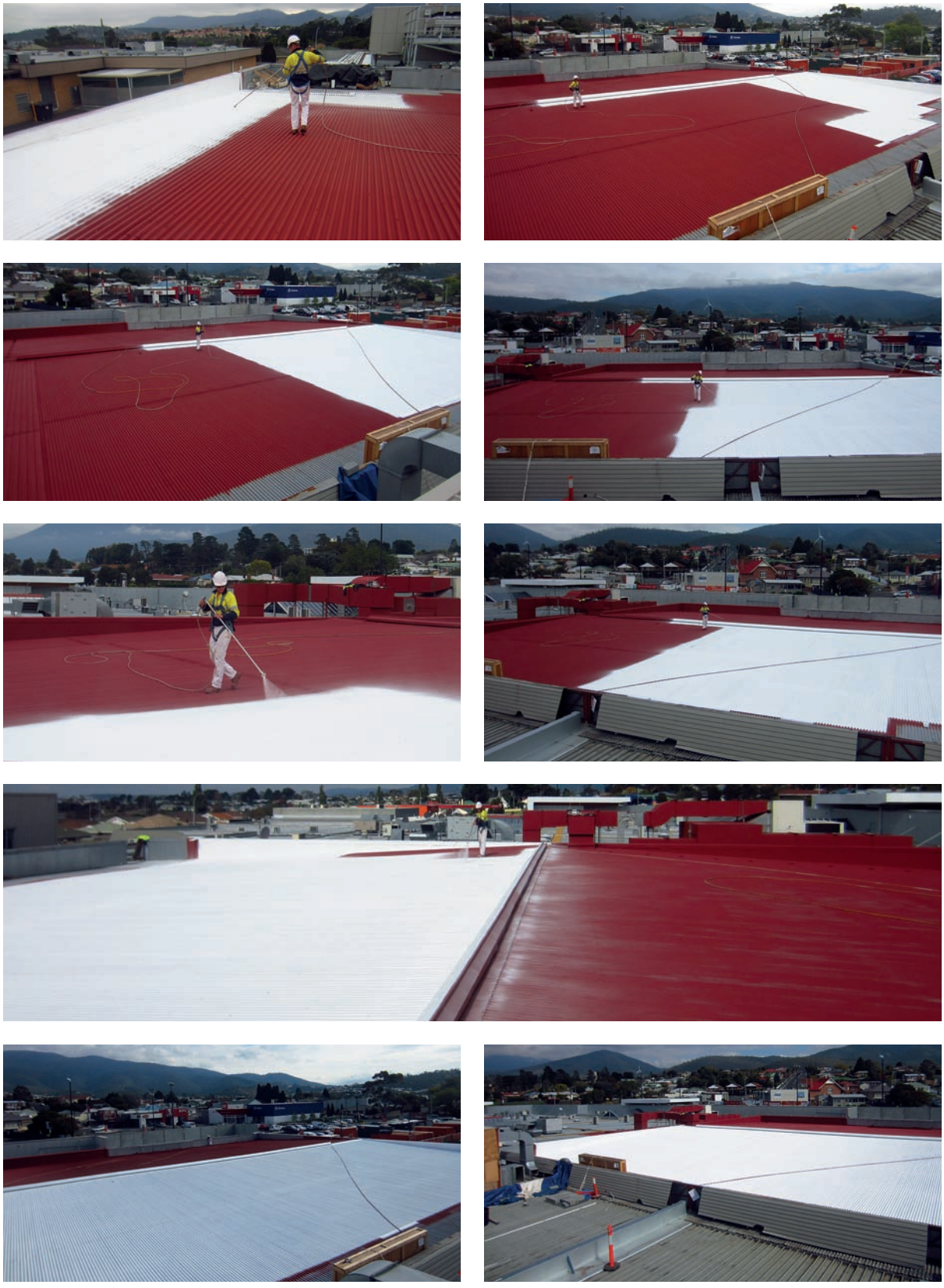
The second method is to keep the metals dry or shielded from the electrolyte (rain water). This can be achieved by encasing the metal beneath the **Thermoshield**, non-permeable, flexible membrane, which acts to encase the substrate keeping it safe from the elements.

Water proofing

In addition to the many preparatory waterproofing measures the **Thermoshield** ceramic membrane provides a 'protective blanket' over the entire roof space.

In essence, if we are able to find no visual evidence of the vivid red etch priming coat, we can be confident that all fibreglass bandage, paintable silicone or waterproofing membrane have been sealed beneath the non-permeable membrane.

Stage 5 Thermoshield ceramic coating

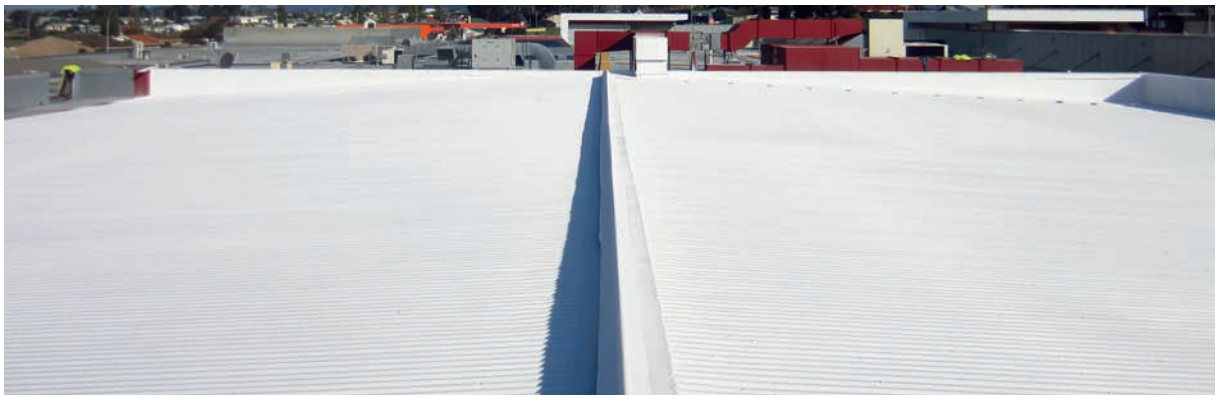


Thermoshield first coat being applied

Stage 5 Thermoshield ceramic coating



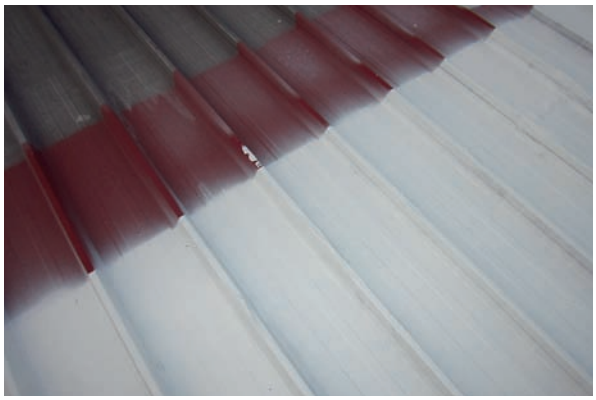
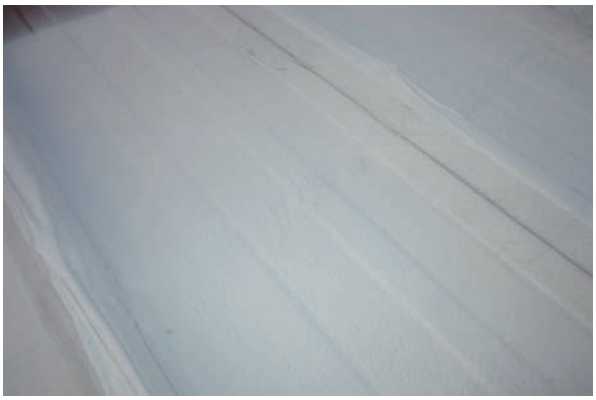




First coat of **Thermoshield** being applied.

Stage 5 Thermoshield ceramic coating



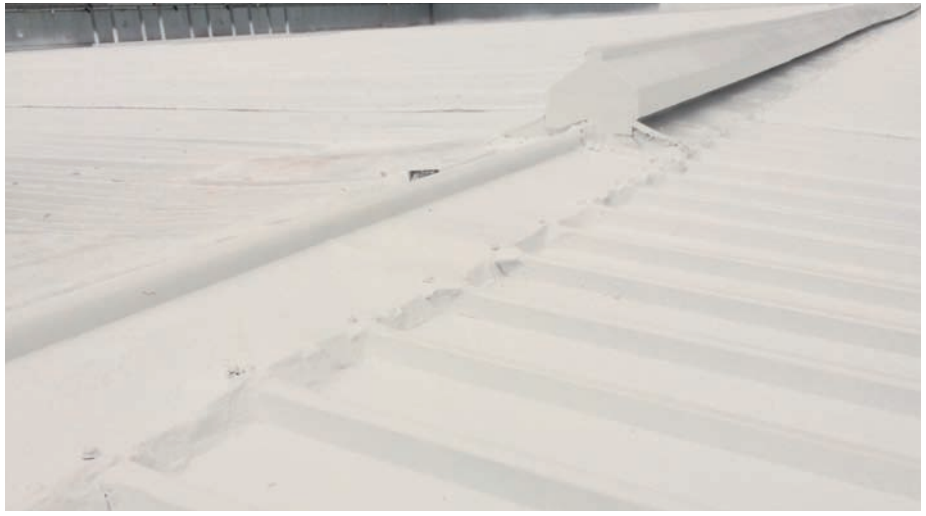




First coat of **Thermoshield** being applied.

Stage 5 Thermoshield ceramic coating

First coat of **Thermoshield** being applied.

Completed various before & after examples



Completed various before & after examples

Completed overall process – final summary

1 – Original condition

2 – RUST CONVERSION – Applied only to rusted metal

1 – RUST INHIBITOR ETCH PRIMER – Applied to all areas

4 – THERMOSHIELD – Thermal ceramic coating applied